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| EXAMINER | |
|---|---|
| BERMAN, SUSAN W | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 1711 | |

DATE MAILED: 10/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/077,166 | CHIEN ET AL. | |
| | Examiner | Art Unit | |
| | Susan W. Berman | 1711 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *28 July 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-101* is/are pending in the application.

4a) Of the above claim(s) *1,11-21,23-44,49-81 and 84-101* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,22,45-48,82,83* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

***Response to Amendment***

Newly amended claim 1, directed to an optical fiber comprising a coating, is grouped with claims 11 and others drawn to a non-elected invention. See the reply filed 09/24/2004.

Since applicant has received an action on the merits for the originally presented invention, drawn to a coating obtained from the compositions set forth in original claim 1, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, amended claim 1 is withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

***Response to Arguments***

Applicant's arguments filed 07-28-2005 have been fully considered but they are not persuasive.

Claim 1, as amended, now claims a coated optical fiber, and is therefore, withdrawn from consideration. Claims 2-10, 22, 45-48, 82 and 83 have been considered herein as being drawn to the cured primary coating obtained by curing the composition set forth in claim 1. It is noted that the examiner has not found any support for the claim 1 limitation "less than about 0.1 pph by weight of a strength additive containing a mono-functional thiol or less than 0.5 pph by weight of a multi-functional thiol group". It is suggested that the claim, if shown to have support within the specification, should read "less than about 0.1 pph by weight of a strength additive that is a monofunctional thiol or less than 0.5 pph by weight of a strength additive that is a multi-functional thiol".

The rejection of claims over JP 402008803 is maintained because the reference teaches cured coatings for optical fibers obtained from a composition comprising the adhesion promoting and strength additive components set forth in the instant claims. The recitation in claim 1 incorporated into the dependent claims of a refractive index higher than that of a cladding on a optical fiber is not considered to define over the disclosure of J '803 because the claims under consideration in the instant application are

drawn to a coating and not to an optical fiber. The compositions disclosed by J '803 would be expected to have the same refractive index as the instantly claimed coating since the components of the coating composition are as recited in the instant claims.

The rejection of claims over Shustack '531 is maintained because applicant has not defined the total weight upon which the recited "pph" in the instant claims is based. In addition, Applicant has not pointed out support for compositions comprising less than about 0.1 pph by weight of a strength additive that is a monofunctional thiol. Furthermore, the claim recitation "les than about 0.1 pph by weight" encompasses the 0.1 percent by weight mercapto-functional silane taught by Shustack in column 11, lines 16-19.

The rejection of claims over Szum '189 is maintained because applicant has not pointed out support for compositions comprising less than about 0.1 pph by weight of a strength additive that is a monofunctional thiol and has not defined the total weight upon which the recited "pph" in the instant claims is based.

Applicant's arguments with respect to the obviousness type double patenting rejection of record are unpersuasive for the reasons mentioned above.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2-10, 22, 45-48, 82 and 83 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims are indefinite because they depend from claim 1, which is drawn to a optical fiber comprising a coating, which is withdrawn from consideration as being drawn to a non-elected invention. Claim 2: It is not clear what is meant by the phrase "claim 1 said strength additive

further comprising an organic strength additive and including at least one element...". It is not clear, because of the phrase "in addition to the S element in said thiol functional group", whether applicant intends to claims an additional "organic strength additive" different from the strength additive set forth in claim 1 or to further define the strength additive set forth in claim 1. See Paragraph [0019] in the specification which appears to describe "said strength additive" containing a thiol group set forth in claim 1 as including at least one of the elements set forth and not an additional strength additive.

It is not clear what total weight, volume or other base the recitation "pph" in claim 1, 6, 7, 22 is based upon. See [0022]. If applicant intends the pph to be based on 100 parts by weight of the composition, it should be so stated.

***Claim Rejections - 35 USC § 102/35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

With respect to the rejections of claims set forth herein, the "coating according to claim 1" recited in the dependent claims is considered to be a cured primary coating obtained by curing a composition comprising a non-thiol functional adhesion promoter and one of the strength additives set forth in claim 1.

Claims 2-4, 6, 45 and 48 are rejected under 35 U.S.C. 102(b) as being anticipated by JP402008803 A. See the Abstract. J '803 discloses a photopolymerizable composition for coating an optical fiber comprising less than 0.3 wt. % mono- or multifunctional thiol and teaches that an acrylsilane can be incorporated as an adhesion promoter.

Claims 2-3, 5-7, 22, 45, 48 and 82 are rejected under 35 U.S.C. 102(b) as being anticipated by Shustack (5,146,531). Shustack discloses coating compositions for optical fibers comprising from 0.1 to

3.0 percent adhesion promoters of the total weight of components A-E. The adhesion promoters include mercapto-functional silanes such as mercaptoalkyl trialkoxy silane that chemically bind in during cure but do not slow down the cure speed. The adhesion promoters also include methacrylated silanes that bind in well with the system but tend to slow down the cure speed. Acid-functional non-silanes are also taught. See columns 10-11. Shustack also teaches adding mercapto compounds as the preferred chain transfer agents (column 11, line 67, to column 12, line 41. Thus Shustack discloses compositions comprising a methacrylated silane adhesion promoter and 0.1 to 10 wt percent of a mercapto compound as chain transfer agent that anticipate the instantly claimed compositions wherein the amount of mercapto compound used is less than or about 0.5 %.

Claims 22 and 82 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP402008803 A. See the Abstract. The Abstract does not disclose a species of acrylsilane or the amount employed in the compositions. It would have been obvious to one skilled in the art at the time of the invention to employ methacryloxy-propyltrimethoxysilane in an amount less than 12 pph of the composition because methacryloxy-propyltrimethoxysilane is a well-known species of acrylsilane adhesion promoter.

Claims 2-5, 8, 22, and 45-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Szum et al (6,298,189) in view of CA 21077448. Szum et al '189 disclose coating compositions for optical fibers comprising silane coupling agents and a composite oligomer having glass coupling moieties but no thiol group. See column 5, line 59, to column 6, line 2, column 20, line 59, to column 22, line 5, column 25, lines 18-31, lines 41-50. Examples 2-2, 2-4, 4-1 disclose compositions comprising both oligomer and a mercaptopropyl trimethoxy silane. The difference form the invention as instantly claimed, is that Szum does not teach the amount of thiol functional silane to be used except for amounts close to 0.9 wt percent used in the Examples.

CA '448 teaches that enhancement of strength retention capabilities is achieved when a high quality interface is established between the coating layer and an optical transmission medium. The enhancement is obtained from a radiation curable ethylenically unsaturated composition and about 0.5 to about 5 weight percent of a specific adhesion promoter that is an alkoxy silane having an active hydrogen such as a mercaptyl hydrogen, such as gamma-mercaptopropyltrimethoxysilane, that allows Michael reaction with the ethylenically unsaturated substituent. See pages 6 and 9.

It would have been obvious to one skilled in the art to determine the amount of mercapto-functional silane compound to employ or to employ an amount of about 0.5 % in order to provide desired properties, such as strength retention, as taught by CA '448 in analogous art. One skilled in the art would have been motivated by a reasonable expectation of successfully providing an optical fiber coating having excellent ribbon stripping and adhesion behavior, as taught by Szum et al, in the absence of evidence to the contrary. Szum et al teach in the Examples that less than 1 wt % of mercapto-functional silane can be used when the inventive oligomer is employed. CA '448 teaches that strength retention properties are enhanced by using a mercapto-functional silane in amounts of about 0.5 %.

Claims 2-8, 22, 45, 48 and 82 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shustack (5,146,531). Shustack discloses coating compositions for optical fibers comprising from 0.1 to 3.0 percent adhesion promoters of the total weight of components A-E. The adhesion promoters include mercapto-functional silanes such as mercaptoalkyl trialkoxy silane that chemically bind in during cure but do not slow down the cure speed. The adhesion promoters also include methacrylated silanes that bind in well with the system but tend to slow down the cure speed. Acid-functional non-silanes are also taught. See columns 10-11. Shustack also teaches adding mercapto compounds as the preferred chain transfer agents (column 11, line 67, to column 12, line 41).

It would have been obvious to one skilled in the art to employ a mixture of methacrylated silane adhesion promoter and mercapto-functional silane adhesion promoter in the coating compositions disclosed by Shustack. Shustack provides motivation by teaching that the methacrylated compounds bind into the cured system better and that the mercapto compounds do not slow down the cure speed. One of ordinary skill in the art would have been motivated by an expectation of advantageously controlling the degree of binding in with the cured system and effecting the cure speed.

Claims 2-8, 22, 45, 48 and 82 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shustack (5,146,531) in view of CA 2107448. Shustack discloses coating compositions for optical fibers comprising from 0.1 to 3.0 percent adhesion promoters of the total weight of components A-E. The adhesion promoters include mercapto-functional silanes such as mercaptoalkyl trialkoxy silane that chemically bind in during cure but do not slow down the cure speed. The adhesion promoters also include methacrylated silanes that bind in well with the system but tend to slow down the cure speed. Acid-functional non-silanes are also taught. See columns 10-11. Shustack also teaches adding mercapto compounds as the preferred chain transfer agents (column 11, line 67, to column 12, line 41).

CA '448 teaches that enhancement of strength retention capabilities is achieved when a high quality interface is established between the coating layer and an optical transmission medium. The enhancement is obtained from a radiation curable ethylenically unsaturated composition and about 0.5 to about 5 weight percent of a specific adhesion promoter that is an alkoxy silane having an active hydrogen such as a mercaptyl hydrogen, such as gamma-mercaptopropyltrimethoxysilane, that allows Michael reaction with the ethylenically unsaturated substituent. See pages 6 and 9.

It would have been obvious to one skilled in the art to employ a mixture of methacrylated silane adhesion promoter and mercapto-functional silane adhesion promoter in the coating compositions disclosed by Shustack. It would further have been obvious to one skilled in the art to determine the

amount of mercapto-functional silane compound to employ or to employ an amount of about 0.5 % in order to provide desired properties, such as strength retention, as taught by CA '448 in analogous art. Shustack provides motivation by teaching that the methacrylated compounds bind into the cured system better and that the mercapto compounds do not slow down the cure speed, thus one of ordinary skill in the art would have been motivated by an expectation of advantageously controlling the degree of binding in with the cured system and effecting the cure speed. One skilled in the art would have been motivated by a reasonable expectation of successfully providing an optical fiber coating having excellent ribbon stripping and adhesion behavior, as taught by Szum et al, in the absence of evidence to the contrary. CA '448 provides additional motivation by teaching that strength retention properties are enhanced by using a mercapto-functional silane in amounts of about 0.5 %.

Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP402008803 A, as applied to claims 6, 22, 45, 48 and 82 above, and further in view of Krongauz et al (6,265,476). J '803 discloses a photopolymerizable composition for coating an optical fiber comprising less than 0.3 wt. % mono- or multifunctional thiol and teaches that an acrylsilane can be incorporated as an adhesion promoter. Kongruaz et al disclose radiation curable compositions comprising an elongation promoter that also provides enhanced strength properties. See the Abstract, column 10, line 7, to column 12, line 29. It would have been obvious to one skilled in the art to employ any of the thiol compounds taught by Kronguaz et al as the thiol compound in the compositions disclosed by J '803. One of ordinary skill in the art would have been motivated by a desire to take advantage of the high elongation and other improved strength properties taught by Kronguaz et al in analogous compositions.

Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shustack (5,146,531) alone or in view of CA 2107448, as applied to claims 6-8, 22, 45, 48 and 82 above, and further in view of

Krongauz et al (6,265,476). Kongrauz et al disclose radiation curable compositions comprising an elongation promoter that also provides enhanced strength properties. See the Abstract, column 10, line 7, to column 12, line 29. It would have been obvious to one skilled in the art to employ any of the thiol compounds taught by Krongauz et al as the thiol compound in the compositions disclosed by J '803. One of ordinary skill in the art would have been motivated by a desire to take advantage of the high elongation and other improved strength properties taught by Krongauz et al in analogous compositions.

Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Szum et al (6,298,189) in view of CA 21077448, as applied to claims 8, 22, and 45-48 above, and further in view of Krongauz et al (6,265,476). Kongrauz et al disclose radiation curable compositions comprising an elongation promoter that also provides enhanced strength properties. See the Abstract, column 10, line 7, to column 12, line 29.

***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 2-10, 22, 45-48, 82 and 83 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-15 of U.S. Patent No. 6,559,197. Although the conflicting claims are not identical, they are not patentably distinct from each other because

the claims of US '197 encompass compositions comprising at least one silane, such as bis(triethoxysilylethyl)benzene recited in claim 15, and a thiol compound, such as 3-mercaptopropyltrimethoxysilane recited in claim 6, and mixtures thereof in amounts less than 10 pph.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan W. Berman whose telephone number is 571 272 1067. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571 272 1078. The fax phone number for the organization where this application or proceeding is assigned is 571 273 8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Susan Berman

SB
10/17/05

Susan W Berman
Primary Examiner
Art Unit 1711